in the management of strangulated intestine, or omentum, is, I think, applicable to these cases.

According to Hamilton (*Principles and Practice of Surgery*), Neboux, Mulert, and Krieger returned the ovary into the cavity of the abdomen, and their patients got well. Deneux, on the other hand, cut away the ovary, and the patient was well in twenty-nine days. Bérard found both the ovary and Fallopian tube in a sac, which he supposed to be a serous cyst. Having opened it, suppuration ensued, and the patient died.

The method of dealing with the ovary adopted in my own case, was, I think, justified by the result; and in similar cases I would recommend similar treatment. But in cases in which, from long continuance of the strangulation, or excessive tightness of the stricture, the tissues of the ovary either are or are likely to become gangrenous, removal of the organ is, in my opinion, the proper course to pursue.

ARTICLE XV.

A CASE OF SPINAL HEMIPLEGIA. By HENRY JANES, M.D., of Waterbury, Vermont.

ON account of the meagre literature on the subject of spinal hemiplegia, the following case, which lately occurred in my practice, may not be without interest.

Mrs. D., æt. 46, a lady of intelligence and refinement, of nervous temperament, and formerly subject to rather frequent attacks of sick headache, but otherwise healthy, had been married about a month, and had passed her menstrual period three weeks, when she "came around" without medication. A short time before marriage she had an attack of cholera morbus which debilitated her considerably, and entire recuperation had been prevented by the wedding preparations, journey, visits, etc. etc. On the evening of January 18, 1877, the second day of menstruation, while feeling quite weak from the unusually profuse flow, as she was sitting alone, she thinks, she suddenly lost consciousness for an instant, and swayed over sideways, but did not fall from her chair. She was soon able, however, to rise, go into another room, get a bottle of spirits of camphor, return, and lie down on the sofa. I saw her in the course of a few minutes, and found her reclining upon the sofa unable to raise her head on account of dizziness. She complained of a prickly feeling in the left hand and an inability to see distinctly. She was able to move all her limbs, though feebly, while lying on the sofa, but was unable to stand or walk to her bed. There was no defect in articulation or drawing of the face.

For the next two or three days she slept the greater part of the time, but had no fever or mental disturbance. She had distressing dizziness whenever she attempted to raise her head, and while lying upon the back or right side objects seemed whirling around, but while on the left side objects like the windows and doors seemed turned a quarter around, *i. e.*, seemed horizontal instead of perpendicular. Light was painful.

Seventeen years previously, after the birth of her second child, at which time she lost considerable blood, after a two years' continuous lactation, this lady had attacks of dizziness, and a somewhat similar sudden derangement of vision lasting about twelve hours, objects seeming completely inverted. For two years afterwards she was asthenopic.

Although able to move all her limbs feebly while in bed she was unable to walk without assistance on account of weakness of the left side, which at the same time was decidedly warmer than the other and more sensitive to the touch and changes of temperature than natural. The right side on the contrary retained its normal power, but had lost its sensibility to touch almost entirely, and to changes of temperature completely, so that, in consequence, she received a severe burn on the leg of that side from a hot brick, which one of her friends had placed beside it, and several times subsequently she had the skin of that side rubbed off in places with the flesh brush without causing pain.

On testing the sensation with the æsthesiometer the left side was found hyperæsthetic, especially about the shoulder, but rather less so at the palm of the hand; leg and body not tested.

On the right side, though the sensation was not completely abolished, it was very much blunted, and she was unable to locate the joint touched with precision, and almost all touch on that side caused sensation only at the hyperæsthesic zone just below the clavicle and upper part of the sternum.

I failed to keep notes of the distance which the two points of the æsthesiometer had to be separated in order to be distinguished, but it was four or five times as great on the right as on the left side. The anæsthesia extended to a little way below the clavicle and above the spine of the scapula, above which, *i. e.*, about the shoulder for a short distance sensation was abnormally acute. There was no loss of the muscular sense on the right side, and she was able to hold articles in that hand while her attention was diverted.

There was a feeling of stiffness about the left cheek; the left eyelid drooped slightly, and the left pupil was contracted. The left eye was more sensitive to light than the right, and vision was indistinct, though after a few days she could read with either eye alone, but adjustment for focus was slow and not the same for both eyes, the left eye being the longest sighted.

Ophthalmoscopic inspection revealed no abnormal appearance except a slight congestion of the left fundus. The left conjunctiva was somewhat red.

The left hand at times was two or three degrees (F.) warmer than the right. These differences in temperature, defects in sight, and the dizziness would disappear for a time, after the application of the constant current of galvanism to the back of the neck for a few minutes. When after a few days she was able to walk she was inclined to turn to the left, and was quite short of breath after exertion. There was no ovarian tenderness, urinary or rectal troubles, disturbance of the functions of the spleen discoverable, or difference in the perspiration of the two sides. As she gradually grew better the anæsthetic side became hyperalgesic, but did not regain the power to distinguish differences in temperature.

To what cause could such an unusual train of symptoms be attributed? Was it a case of hysterical hemianæsthesia as described by Charcot?

The lady never had anything approaching a hysterical convulsion, was not of the hysterical temperament, and was not of the age at which such manifestations first make their appearance. There was no ovarian tenderness, and after the first attack no aggravation of the symptoms during menstruation. The anæsthesia did not extend over the whole side as in Charcot's cases, but was bounded sharply by a line just below the shoulder, to which line all sensations caused by touch (slight as well as painful) on that side were referred. These were not the ordinary reflected painful sensations to which M. Gubler has called attention, which are only excited by somewhat sharp pain, and are felt in various parts of the same side, though remote, and are always the same for the same point irritated.

The ocular derangements, viz., contraction of the pupil, presbyopia, congestion of the fundus of one eye alone, could hardly be referred to simple hysteria.

As the patient improved under galvanism the anæsthesia was not transferred to the opposite side as in Charcot's cases. The lesion was too sudden in its advent and too extensive to be peripheral, and on the other hand, if of cerebral origin, the symptoms could only have been caused by two or more separate and distinct injuries involving one the sensory and the other the motor tract.

If the lesion was in the medulla oblongata there would almost certainly have been more or less paralysis of the tongue, more trouble with the respiratory functions as well as paralysis of motion and sensation on the same side, and perhaps diabetes or albuminuria.

The injury must have been above the origin of at least a portion of the nerves going to form the brachial plexus, or there would not have been the loss of power and sensation in the upper extremity, consequently it must have been located in the neck, and it was a case of incomplete spinal hemiplegia. There was not at that time or subsequently any marked pain or tenderness about the head or spine.

Although spinal hemiplegia is noticed by Todd, in his lectures on the nervous system, and he narrates two cases which he considers of this nature, he does not give clear diagnostic symptoms by which this form of hemiplegia may be distinguished from that of cerebral origin. Other physicians have from time to time published cases which were apparently of this character, but generally the symptoms were misinterpreted, and, so far as I am aware, Brown-Séquard in 1869 and 1870 first clearly pointed out the diagnostic differences between cerebral and spinal hemiplegia, in his lectures on the Physiology and Pathology of the Nervous System, which were illustrated by all the cases of spinal hemiplegia which he had been able to collect up to that time, some twenty in number. In these lectures he demonstrates that when a lesion confined to one lateral half of the spinal cord causes paralysis of motion, it is always on the *side of the* *injury*, and that when it causes a loss of sensation it is always on the *side opposite the injury.*

From the pathological observations, vivisections, and dissections of Brown-Séquard, Lockhart Clarke, and others, it may now be considered proven that the sensitive nerve fibres in the spinal cord, instead of crossing with the motor fibres at the medulla oblongata, cross throughout the whole length of the cord, and soon after entering it.

Schiff has confirmed most of Brown-Séquard's experiments, and finds that sensory impressions are conveyed through the gray portions of the cord, and that the sensory fibres cross soon after entering the cord in most, but not all animals—the cat, for instance, being an exception to the general rule.

The hyperæsthesia on the injured side, caused by the division of one lateral half of the cord in the neck, seems, in great measure, owing to the vaso-motor paralysis and consequent greater flow of blood and increased temperature, so well known as the result of section of the cervical sympathetic, but until recently less known after spinal injuries. It begins a few hours after injury, and in dogs and cats, according to Schiff, gradually decreases after two or three weeks. In man, however, it persists longer, as in several of the cases given by Brown-Séquard it still remained after a number of years, in one case over twenty.

Disturbances of vision, also, are well known to follow injuries of the cervical sympathetic, and according to Budge, Valentin, and others, there arise from the spinal cord, between the second dorsal and sixth cervical vertebræ, nerve-fibres, most of which pass up in the sympathetic trunk and through the cavernous plexus to the ophthalmic ganglion, the branches of which regulate the motion of the iris and the supply of blood to the eyeball. This intimate connection explains the cause of the eye symptoms after lesions of the spinal cord in this neighbourhood.

Just above the cilio-spinal centre, viz., above the fifth cervical vertebra, according to Schiff, there passes in the lateral column a bundle of fibres, by which the sensory impressions exciting the respiratory movements of the thorax are conducted. Injuries to these fibres, if severe, cause permanent paralysis of the respiratory movements. According to Brown-Séquard this is not invariably the case.

By comparing the symptoms observed in the case of Mrs. D., with those produced by vivisections and diseases in the cervical spinal cord heretofore reported, we must conclude—

1st. That the lesion was below the medulla oblongata, as sensation and motion were paralyzed on opposite sides—as there was no paralysis of the hypoglossal nerve whose fibres of origin arise in close proximity to the upper cilio-spinal centre, and as there was but slight respiratory trouble.

2d. That the lesion was above the first dorsal vertebra, or there would not have been the loss of power in the upper extremity—also that the lesion was not extensive enough to involve all the branches of the brachial plexus, or the paralysis would have been more complete, and the loss of sensation would have extended above the shoulder.

3d. If the lesion had been mainly between the medulla oblongata and the fifth cervical vertebra we should have expected more respiratory disturbance, anæsthesia to a higher point, and, perhaps, inasmuch as the splenic centre is located, according to Bulgak, between the first and fourth cervicals, some splenic symptoms.

We must therefore infer that the lesion was between the fifth cervical and the first dorsal vertebra.

4th. From the comparatively slight motor paralysis we may conclude that the antero-lateral columns were only slightly affected, as section of one of these columns causes almost complete motor paralysis of the same side; and from the greater paralysis of sensation, that the gray matter was more severely injured, inasmuch as sensation is conveyed through the gray matter.

5th. We may infer that the lesion was situated, or at least was more severe, in the central parts of the gray substance than in the anterior or posterior horns, as the loss of the sensation of temperature was greater and more persistent than that of ordinary touch or pain; for, according to Brown-Séquard, in the dorsal and a portion of the cervical cord the conductors of these different sensations run in different parts of the gray substance, those for temperature in the central, those for pain in the posterior and lateral, and those for ordinary touch and tickling in the anterior parts.

As to the nature of the lesion we may conclude—

1st. That it was not spinal anæmia, because the paresis was not increased by the erect posture, and the lesion was evidently too sharply localized to be dependent on such a cause.

2d. That it was not a serous effusion, as in that case the effusion would have been in the arachnoid cavity, and would have compressed the external or motor fibres more than the sensory.

3d. From the suddenness of its access and the persistence of some of the symptoms it was not a simple congestion, but there was probably a slight extravasation of blood; but, on the other hand, from the rapid recovery of the motor powers and the sensation of touch, we may conclude that these conductors were not ruptured by the hemorrhage, but only had their functions temporarily obstructed by the pressure or congestion around the hemorrhage. That the hemorrhage was not followed by noticeable inflammation, effusion, or secondary degeneration we may infer from the same facts, from the hyperæsthesia following the anæsthesia, and from the absence of any spasmodic action which, according to Charcot, always accompanies inflammation of the lateral columns.

Had menstruation anything to do with this hemorrhage? I am inclined to believe that it had, although I am not at present prepared to say what the connection was, for several cases are on record in which spinal paralysis followed flooding after delivery, or profuse or suppressed menstruation.

The treatment of this case consisted of the administration of ergot and the ferruginous tonics at first, and afterwards the constant galvanic current to the back of the neck and paralyzed side, and faradization with the wire brush to the anæsthetic side.

The patient is now, June 14, 1877, unusually stout and well, and has entirely recovered, except as regards the power to distinguish differences of temperature, and a slight hyperalgesia on the right side, particularly after unusual fatigue. The temperature is now alike on both sides.

ARTICLE XVI.

A CASE OF NEURALGIA OF THE SECOND METATARSO-PHALANGEAL ARTICULATION. CURED BY RESECTION OF THE JOINT.

By ERSKINE MASON, M.D., Surgeon to the Roosevelt Hospital, New York.

FRANK P., aged 21, native of South America, fireman by occupation, was admitted into Roosevelt Hospital, January 17, 1877, and gave the following history:

Sixteen months ago he fell from his engine, and received a compound fracture of the right femur a short distance above the knee, from which he made a good recovery, though with an anchylosed knee. Six months ago he had the great right toe removed in Chicago for what he called neuralgia, though he states that the surgeon who removed it told him that the joint was diseased. It was removed at the metatarso-phalangeal articulation. Four months ago he began to have pain similar to that which had previously existed in the great toe, in the metatarso-phalangeal articulation of the second toe. This pain has increased so that for the past two months it has been so severe when walking or standing that he had to give up work, and now enters the hospital, either to have the toe removed, or obtain relief in some other way. The general condition of the patient is good. There is no swelling or redness about the toe, but the slightest pressure is sufficient to produce pain, and when walking he bears all his weight upon the heel. All the toes are constantly in a state of great extension, looking almost as if dislocated forward.

A variety of treatment failing to afford relief, I determined to resort to resection of the joint, bearing in mind Dr. Thomas G. Morton's interesting and instructive paper in the *American Journal of the Medical Sciences* for January, 1876. I accordingly removed this joint by a single straight incision on the dorsum of the toe on the sixth of February, 1877. So great was the degree of extension of the toe that a partial luxation may be said to have taken place. Nothing abnormal was detected in the articulating surfaces of the bones removed. From the time of the operation all pain ceased, and he has since had no return of his troubles. The wound, however, was some